

ARKANSAS ALIGNMENT FOR NIH SUPPLEMENT HUMAN GENETIC VARIATION

HUMAN GENETIC VARIATION		
Arkansas Biology Standards		
Activity	Standard	Descriptor
All activities	HE.5.B.6	Identify effects of changes brought about by mutations: beneficial, harmful, and neutral.
All activities	HE.6.B.2	Recognize that evolution involves a change in allele frequencies in a population across successive generations.
1, 2, 3	HE.6.B.3	Analyze the effects of mutations and the resulting variations within a population in terms of natural selection.
2, 3, 5	EBR.9.B.3	Assess current world issues applying scientific themes (e.g., global changes in climate, epidemics, pandemics, ozone depletion, UV radiation, natural resources, use of technology, and public policy).
1, 2, 3	NS.10.B.4	Summarize the guidelines of science: explanations are based on observations, evidence, and testing, hypotheses must be testable, understandings and/or conclusions may change with additional empirical data, and scientific knowledge must have peer review and verification before acceptance.
3	NS.11.B.1	Develop and explain the appropriate procedure, controls, and variables (dependent and independent) in scientific experimentation.
2, 3	NS.11.B.3	Identify sources of bias that could affect experimental outcome.
1, 2, 4	NS.11.B.4	Gather and analyze data using appropriate summary statistics.
1, 2, 3, 4	NS.11.B.5	Formulate valid conclusions without bias.
3, 4	NS.11.B.6	Communicate experimental results using appropriate reports, figures, and tables.
2, 3, 4, 5	NS.12.B.6	Relate the chromosome theory of heredity to recent findings in genetic research (e.g., Human Genome Project-HGP, chromosome therapy).
3, 4	NS.13.B.1	Collect and analyze scientific data using appropriate mathematical calculations, figures, and tables.
2, 3, 5	NS.14.B.1	Compare and contrast biological concepts in pure science and applied science.
2, 3, 5	NS.14.B.4	Explain how the cyclical relationship between science and technology results in reciprocal advancements in science and technology.
Arkansas Anatomy and Physiology Standards		
Activity	Standard	Descriptor
5	APC.3.AP.7	Explain the consequences of abnormal cell division.
1, 2, 3	NS.16.AP.4	Summarize the guidelines of science: explanations are based on observations, evidence, and testing, hypotheses must be testable, understandings and/or conclusions may change with additional empirical data, and scientific knowledge must have peer review and verification before acceptance.
3	NS.17.AP.1	Develop and explain the appropriate procedure, controls, and variables (dependent and independent) in scientific experimentation.

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2, 3	NS.17.AP.3	Identify sources of bias that could affect experimental outcome.
1, 2, 4	NS.17.AP.4	Gather and analyze data using appropriate summary statistics.
1, 2, 3, 4	NS.17.AP.5	Formulate valid conclusions without bias.
3, 4	NS.17.AP.6	Communicate experimental results using appropriate reports, figures, and tables.
2, 3, 4, 5	NS.18.AP.4	Relate the chromosome theory of heredity to recent findings in genetic research (e.g., Human Genome Project-HGP, chromosome therapy).
3, 5	NS.18.AP.5	Research current events and topics in human biology.
3, 4	NS.19.AP.1	Collect and analyze scientific data using appropriate mathematical calculations, figures, and tables.
2, 3, 4	NS.20.AP.1	Compare and contrast human biology concepts in <i>pure science</i> and <i>applied science</i> .
2, 3, 5	NS.20.AP.3	Explain how the cyclical relationship between science and technology results in reciprocal advancements in science and technology.

Arkansas Algebra I Standards

Activity	Standard	Descriptor
1, 2, 3, 4	SEI.2.AI.5	Solve real world problems that involve a combination of rates, <i>proportions</i> and percents.
1, 2, 3, 4	SEI.2.AI.8	Communicate real world problems graphically, algebraically, numerically and verbally.
3	LF.3.AI.4	Identify <i>independent variables</i> and <i>dependent variables</i> in various representational modes: words, symbols, and/or graphs.
4	DIP.5.AI.6	Construct and interpret a cumulative frequency <i>histogram</i> in real life situations.

Arkansas English Language Arts Standards: Grades 9 & 10

Activity	Standard	Descriptor
All activities	OV.1.9.1 OV.1.10.1	Adjust oral language to audience and appropriately apply the rules of standard English.
All activities	OV.1.9.2 OV.1.10.2	Prepare and participate in structured discussions, such as panel discussion.
All activities	OV.2.9.4 OV.2.10.4	Demonstrate attentive, reflective, and critical listening skills to respond to and interpret speaker's message.
All activities	W.4.9.4 W.4.10.3	Write clear and varied sentences.
All activities	W.4.9.5 W.4.10.4	Elaborate ideas clearly and accurately through word choice, vivid description, and selected information.
All activities	W.4.9.6 W.4.10.5	Adapt content vocabulary, <i>voice</i> , and <i>tone</i> to audience, purpose, and situation.

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All activities	W.4.9.8 W.4.10.7	Revise content of writing for central idea, elaboration, unity, and organization.
All activities	W.4.9.9 W.4.10.8	Revise <i>style</i> of writing for selected vocabulary, selected information, sentence variety, <i>tone</i> and <i>voice</i> .
All activities	W.4.9.12 W.4.10.11	Apply grammatical conventions for capitalization, punctuation, formatting, and spelling.
All activities	W.5.9.1 W.5.10.1	Adjust levels of formality, <i>style</i> , and <i>tone</i> when composing for different audiences.
All activities	W.5.9.9 W.5.10.9	Write across the curriculum.
All activities	W.6.9.8 W.6.10.4	Apply conventional spelling to all pieces.
2, 3, 4, 5	R.9.9.5 R.9.10.5	Draw inferences from a sentence or a paragraph (including conclusions, generalizations, and predictions) and support them with text evidence.
2, 3, 4, 5	R.9.9.8 R.9.10.7	Summarize and paraphrase structures in informational and literary texts, including relationships among concepts and details.
2, 3, 4, 5	R.9.9.13 R.9.10.12	Identify and discuss a position using concepts gained from reading.
2, 3, 4, 5	R.10.9.1 R.10.10.1	Read across the curriculum a variety of such <i>practical texts</i> as advertisements, warranties, manuals, handbooks, agendas, labels, warnings and directions.
All activities	R.11.9.1 R.11.10.1	Expand vocabulary through reading, listening, and discussing.
3	IR.12.9.2 IR.12.10.2	Establish a focus for research and design a research plan to answer a specific question (9) / set of questions (10).
3	IR.12.9.12 IR.12.10.12	Create research products such as: oral presentation, reports, and essays.

Arkansas Health and Safety Standards: Grades 9 – 12

Activity	Standard	Descriptor
4	HGD.1.HW.2	Assess the affects of physical activity on the body systems.
5	DP.2.HW.4	Examine practices of early disease prevention and detection measures: regular physical activity, proper diet, self exams, health screenings, and vaccinations.
4	DP.2.HW.7	Examine the causes of chronic diseases (e.g., obesity, underweight/underweight, heredity, chemicals, drug use, life-style, sun exposure).
4	DP.2.HW.8	Analyze the relationship between chronic diseases and a healthy lifestyle (e.g., heart disease, obesity, diabetes,

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		cancer).
4	HLSR.4.HW.3	Develop a variety of strategies and/or skills to demonstrate respect for and responsibility to self and others.
5	HLSR.4.HW.4	Discuss immediate and long-term impacts of health decisions on the individual, family, and community (e.g., sexual activity, teen pregnancy, oral health, immunizations, drug use, addictions, and medical check-ups).